

REMARKS

Applicant has amended the Abstract; amended the drawings; canceled claims 2 and 7, without prejudice or disclaimer of their subject matter; amended claim 3 to change its dependency; amended claim 5 to correct a typographical error as required by the Examiner; and amended claims 1 and 6 to more appropriately define the present invention. Upon entry of this Amendment, claims 1, 3-6, and 9-20 remain pending, with claims 1, 3-6, and 8 under examination and claims 9-20 withdrawn from further consideration.

Regarding the Office Action:

In the Office Action, the Examiner objected to the drawings; objected to claim 5 because of an informality; rejected claim 6 under 35 U.S.C. § 112, second paragraph; rejected claims 1 and 5 under 35 U.S.C. § 102(b) as being anticipated by Matsubara (U.S. Patent No. 6,271,594) ("Matsubara"); rejected claims 2, 3, 7, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka et al. (U.S. Patent No. 6,333,547) ("Tanaka"); and rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Konuma et al. (U.S. Patent No. 6,049,092) ("Konuma"). Applicant traverses the rejections for the following reasons.¹

Regarding the Abstract:

Applicant has amended the Abstract, to replace "comprising" with "includes," thereby placing the Abstract in proper U.S. form. Applicant has also amended the Abstract to reflect the amendments made to independent claim 1.

¹ The Office Action may contain statements characterizing the related art, case law, and claims. Regardless of whether any such statements are specifically identified herein, Applicant declines to automatically subscribe to any statements in the Office Action.

Regarding Drawing Amendment:

The Examiner objected to the drawings because the reference “21,” mentioned in the specification, was not included in the drawings. In response, Applicant has amended Fig. 7 to include the reference numeral “21.” In addition, Applicant has corrected reference numeral “26” in Fig. 7 to be reference numeral --29-- and have added a new reference numeral “26.” Therefore, Applicant deems the objection to drawings overcome. Accordingly, Applicant files herewith one (1) sheet of drawings, labeled “Replacement Sheet,” containing amended Fig. 7, and Fig. 8.

Applicant requests that the replacement sheet be made of official record in the above-identified patent application. If the drawings for any reason are not in full compliance with the pertinent statutes and regulations, please so advise the undersigned.

Regarding the Claim Amendments:

Support for the amendments may be found in original (now-cancelled) claim 7, and in the specification at, for example, p. 13, lines 18-20.

Objection to Claim 5:

The Examiner objected to claim 5 “because of the following informalities: the word ‘meal’ needs to be changed to ‘metal’ in line 2”. Appropriate correction is required” (Office Action, p. 2). Applicant has amended claim 5 to change the term “meal” in line 2 to --metal--, and therefore deems the objection to claim 5 overcome.

Rejection of Claim 6 under 35 U.S.C. § 112, 2nd Paragraph:

The Examiner alleged that claim 6 is indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention and alleged that “claim 6 also recites the limitation ‘a metal of the metal silicide’ in line 2. A metal has been

distinctly claimed in claim 5 so ‘a metal of the metal silicide’ lacks antecedent basis” (Office Action, p. 3).

In response, Applicant has amended claim 6 to clarify “wherein [[a]] the metal of the metal silicide has a stacked structure composed of a plurality of different metal layers,” thereby overcoming any indefiniteness or antecedent basis issues. Accordingly, Applicant requests withdrawal of the 35 U.S.C. § 112, 2nd paragraph, rejection.

Rejection of Claims 1 and 5 under 35 U.S.C. § 102(b):

Applicant traverses the rejection of claims 1 and 5 under 35 U.S.C. § 102(b) as being anticipated by Matsubara. Applicant respectfully disagrees with the Examiner’s arguments and conclusions.

In order to properly establish that Matsubara anticipates Applicant’s claimed invention under 35 U.S.C. § 102, each and every element of each of the claims in issue must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” See M.P.E.P. § 2131, quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Matsubara does not disclose at least Applicant’s claimed “an insulating film provided on the semiconductor substrate so as to be in contact with at least the conductive layer, wherein the insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less,” according to amended claim 1. Rather, an examination of Matsubara’s Fig. 4, and corresponding description, reveals that Matsubara discloses diamond-like carbon film 113 over metal silicide layer 108. The diamond-like carbon film 113 does not constitute Applicant’s claimed insulating film “mainly composed

of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less,” according to amended claim 1. Thus, Matsubara does not anticipate Applicant’s independent claim 1.

Independent claim 1 is therefore allowable, and dependent claim 5 is also allowable at least by virtue of its dependence from allowable base claim 1. Therefore, the 35 U.S.C. § 102(b) rejection of claims 1 and 5 should be withdrawn.

Rejection of Claims 2, 3, 7, and 8 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 2, 3, 7, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka. Applicant respectfully disagrees with the Examiner’s arguments and conclusions. The rejection of claims 2 and 7 has been rendered moot. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 3 (August 2005), p. 2100-134.

A *prima facie* case of obviousness has not been established because neither Matsubara nor Tanaka, taken alone or in combination, teaches or suggests every feature of Applicant’s claims. Specifically, Matsubara and Tanaka, taken alone or in combination, do not teach or suggest each and every element of Applicant’s independent claim 1, from which claims 3 and 8 depend.

Applicant has already demonstrated previously herein that Matsubara does not teach or suggest all the elements of independent claim 1. In addition, the Examiner admitted that Matsubara “does not disclose that the insulating film is mainly silicon nitride or the concentration of carbon, chlorine or hydrogen” (Office Action, p. 5).

The Examiner’s application of Tanaka, however, does not cure the deficiencies of Matsubara already discussed. The Examiner alleged that Tanaka “teaches an insulating layer of silicon nitride containing ... the concentration of all three: carbon, chlorine and hydrogen” (Office Action, p. 5, citing cols. 28 and 31 of Tanaka). While Tanaka’s silicon nitride film 411 “contains hydrogen, chlorine and carbon as impurities” (col. 28 and Figs. 25A-D), Applicant notes that there is no interlayer insulating film provided to cover the silicon nitride insulating layer, as required by claim 1. Tanaka’s silicon nitride film 411 “act[s] as a cap insulating film” (col. 27, lines 65-66). Further, Tanaka’s silicon nitride film 405, while covered by interlayer insulating film 406, does not constitute the claimed “insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less,” as required by claim 1. That is, Tanaka’s silicon nitride film 405 does not contain carbon or chlorine.

Thus, even if Tanaka were combined with Matsubara as the Examiner suggests, neither teaches or suggests all elements recited in independent claim 1, and required by dependent claims 3 and 8. Therefore, the Examiner’s application of Tanaka does not render obvious the recitations of Applicant’s dependent claims 3 and 8.

For at least these reasons, the Examiner’s rejection is improper and without merit. Accordingly, the Examiner has failed to establish *prima facie* obviousness of dependent claims 3 and 8. Dependent claims 3 and 8 are also allowable at least by virtue of their respective

dependence from allowable base claim 1. The 35 U.S.C. § 103(a) rejection should be withdrawn.

Rejection of Claim 4 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Konuma. Applicant respectfully disagrees with the Examiner's arguments and conclusions.

A *prima facie* case of obviousness has not been established because neither Matsubara nor Konuma, taken alone or in combination, teaches or suggests every feature of Applicant's claims. Specifically, Matsubara and Konuma, taken alone or in combination, do not teach or suggest each and every element of Applicant's independent claim 1, from which claim 4 depends.

Applicant has already demonstrated previously herein that Matsubara does not teach or suggest all the elements of independent claim 1. In addition, the Examiner admitted that Matsubara "does not disclose nickel as one of the options for the metal layer" (Office Action, p. 5).

The Examiner's application of Konuma, however, does not cure the deficiencies of Matsubara already discussed. That is, Konuma, also does not teach or suggest at least the claimed "an insulating film provided on the semiconductor substrate so as to be in contact with at least the conductive layer, wherein the insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less," according to amended claim 1. In fact, an electronic search of Konuma's disclosure on the USPTO website indicates that there is no disclosure of "chlorine" at all.

Thus, even if Konuma were combined with Matsubara as the Examiner suggests, neither teaches or suggests all elements recited in independent claim 1, and required by dependent claim 4. Therefore, the Examiner's application of Konuma does not render obvious the recitations of Applicant's dependent claim 4.

For at least these reasons, the Examiner's rejection is improper and without merit. Accordingly, the Examiner has failed to establish *prima facie* obviousness of dependent claim 4. Dependent claim 4 is also allowable at least by virtue of its dependence from allowable base claim 1. The 35 U.S.C. § 103(a) rejection should be withdrawn.

Conclusion:

In view of the foregoing, Applicant requests reconsideration of the application and withdrawal of the rejections. Pending claims 1, 3-6, and 8 are in condition for allowance, and Applicant requests a favorable action.

If there are any remaining issues or misunderstandings, Applicant requests the Examiner telephone the undersigned representative to discuss them.

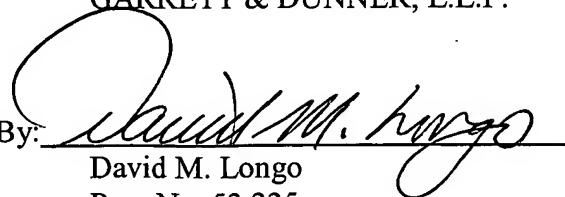
Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By:


David M. Longo
Reg. No. 53,235

/direct telephone: (202) 408-4489/